

AVAGO TECHNOLOGIES, LTD.
P.O. Box 1920
Denver, Colorado 80201-1920

ATTORNEY DOCKET NO. 10030175-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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AUG 15 2006

Inventor(s): Tong Xie et al.

Serial No.: 10/759,646

Examiner: Dinh, Duc Q.

Filing Date: January 16, 2004

Group Art Unit: 2629

Title: POSITION DETERMINATION AND MOTION TRACKING

COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria VA 22313-1450

TRANSMITTAL LETTER FOR RESPONSE/AMENDMENT

Sir:

Transmitted herewith is/are the following in the above-identified application:

- ☒ Response/Amendment ☐ Petition to extend time to respond
☐ New fee as calculated below ☐ Supplemental Declaration
☒ No additional fee (Address envelope to "Mail Stop Amendments")
☐ Other: (Fee \$_____)

CLAIMS AS AMENDED BY OTHER THAN A SMALL ENTITY						
(1) FOR	(2) CLAIMS REMAINING AFTER AMENDMENT	(3) NUMBER EXTRA	(4) HIGHEST NUMBER PREVIOUSLY PAID FOR	(5) PRESENT EXTRA	(6) RATE	(7) ADDITIONAL FEES
TOTAL CLAIMS	27	MINUS	27	= 0	X 50	\$ 0
INDEP. CLAIMS	4	MINUS	4	= 0	X 200	\$ 0
<input type="checkbox"/> FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ 360	\$ 0
EXTENSION FEE	1 ST MONTH 120.00 <input type="checkbox"/>	2 ND MONTH 450.00 <input type="checkbox"/>	3 RD MONTH 1020.00 <input type="checkbox"/>	4 TH MONTH 1590.00 <input type="checkbox"/>	\$ 0	
OTHER FEES						\$ 0
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 0

Charge \$0 to Deposit Account 50-3718. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 50-3718 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 50-3718 under 37 CFR 1.16, 1.17, 1.19, 1.20 and 1.21. A duplicate copy of this transmittal letter is enclosed.

Respectfully submitted,

Tong Xie et al.

By



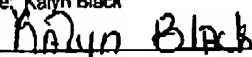
Nellie C. Kaufman, Esq.
Attorney/Agent for Applicant(s)

I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office on the date shown below:

Date of facsimile: August 15, 2006

Typed Name: Kalyn Black

Signature:



Reg. No. 34,689

Date: August 15, 2006

Telephone No. (303) 298-9888

Rev 1004a (TransAmd)

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TOTAL CLAIMS	27	MINUS	27	= 0	X 50	\$ 0
INDEP. CLAIMS	4	MINUS	4	= 0	X 200	\$ 0
<input type="checkbox"/> FIRST PRESENTATION OF A MULTIPLE DEPENDENT CLAIM					+ 380	\$ 0
EXTENSION FEE	1 ST MONTH 120.00 <input type="checkbox"/>	2 ND MONTH 450.00 <input type="checkbox"/>	3 RD MONTH 1020.00 <input type="checkbox"/>	4 TH MONTH 1590.00 <input type="checkbox"/>		\$ 0
OTHER FEES						\$ 0
TOTAL ADDITIONAL FEE FOR THIS AMENDMENT						\$ 0

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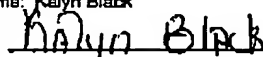
Nellie C. Kaufman, Esq.
Attorney/Agent for Applicant(s)

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Date of facsimile: August 15, 2006

Typed Name: Kelyn Black

Signature:



Reg. No. 34,689

Date: August 15, 2006

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Rev 10/04 (TransAm)

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AUG 15 2006

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Patent Application of:

TONG XIE et al.

Serial No. 10/759,646

Filed January 16, 2004

For POSITION DETERMINATION
AND MOTION TRACKING

Confirmation No. 8030

Attorney Docket No: 10030175-1

Examiner Duc Q. Dinh

Group Art Unit 2629

RESPONSE TO RESTRICTION REQUIREMENTCommissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Sir:

In a Restriction Requirement mailed 7/20/06, the Examiner restricted the above-identified application to one of the following inventions:

- I. Claims 1-16, drawn to a computer mouse system, classified in class 345, subclass 163.
- II. Claims 17-23, drawn to a computer stylus device, classified in class 178, subclass 19.05.
- III. Claims 24-27, drawn to "an optical measure[ment] device such as an interferometer," classified in class 356, subclass 452.

Applicants hereby elect with traverse to continue prosecution of Group I, claims 1-16, in the present application. If the Examiner does not withdraw the

Restriction Requirement, he may cancel claims 17-27 from the present application, with the understanding that Applicants retain the right to reintroduce these claims in a future divisional application.

Applicants respectfully traverse the present restriction requirement for the following reasons. First, Applicants disagree with the Examiner's statement that the claims of Group III are directed to "an optical measure[ment] device such as an interferometer". These claims are instead directed to "**a system for determining a position of an object**, the system comprising... a means of interferometrically analyzing an interference pattern..." [emphasis added]. The Examiner states on page 2 of the Restriction Requirement that the "subcombination has separate utility such as the mouse system does not use the photo sensors in the stylus system in invention II, does not use the broadband light source and electromagnetic radiation use [sic] in the invention III." Applicants assert that the claims of Groups I, II and III are interrelated in a manner described in the Brief Summary of the Invention, found at pages 1 and 2 (paragraphs 0004-0006) of the Specification, which is reproduced below:

BRIEF SUMMARY OF THE INVENTION

[0004] In accordance with the invention it is possible to determine the position of an object relative to a reference point. Through repeated determination of an object's position, it is possible to track the object's motion within a reference frame.

[0005] In accordance with the invention, a beam of light can sweep about a reference point and through defined arcs that correspond to a search area. An object, when appropriately arranged, will reflect this beam when placed within the search area. The angle of the beam at the time of reflection is used as one position coordinate for the object within a reference frame. The reflected beam is directed to a detector where it combines with a control beam to form an interference pattern. Through interferometry, the object's distance from the reference point is calculated from the interference pattern and is used as a second position coordinate of the object within the reference frame. The calculated distance is combined with the

angle of the light beam at the moment of reflection to define the object's position in two dimensions relative to the reference point. Motion of the object is tracked by repeatedly determining the object's position.

[0006] In accordance with the invention a reflector, such as a retroreflector, can be affixed to the object, causing the beam to be reflected back along it's incident path. A broadband radiation source may also be used to produce the beam and with a system adapted to use low-coherence interferometry precisely determine the object's distance from a reference point. In accordance with the invention these systems and methods can provide input device navigation in processor based systems.

In view of the above, Applicants respectfully request the Examiner to remove the Restriction Requirement from the claims.

Respectfully submitted,

August 15, 2006



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